

The Dark Side of the Nuclear Smuggling Business

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Rensselaer Lee

Global Advisory Services
McLean, VA

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A SHADOW MARKET?

The threat of catastrophic terrorism in the post-9/11 world raises new concerns about a recurrent and pervasive phenomenon: the illegal trade in nuclear and radiological materials. The true dimensions of the nuclear smuggling business and its implications for international stability and relationships are somewhat ambiguous. Little nuclear material of significance and no nuclear warheads appear to circulate in the black market; buyers are elusive; and arrest and seizure statistics provide little evidence of participation in the market by rogue states, terrorists, and major transnational crime formations. Nevertheless, the observed reality of the traffic may be a misleading guide to the magnitude and patterns of the traffic as a whole. It is what we can't see happening that gives us greatest cause for worry.

As with other illegal businesses, drugs for example, what is seized is only a small fraction of what circulates in international smuggling channels. Some significant incidents go unreported, particularly in former Soviet states. Also, it stands to reason that sophisticated and well-connected smugglers are far less likely to get caught than the amateur criminals and scam artists who dominate the known incidents. And on the demand side, we can be fairly certain that a handful of nation-states and sub-national actors are "in the market" for nuclear materials. Over the years, North Korea, Iraq, Iran and Libya have tried to purchase stolen fissile material for a bomb, and al Qaeda has sought such materials in various venues--Africa, Western Europe and the former Soviet Union--since the early 1990s. Conceivably, purveyors of strategic nuclear wares may converge with end-users in ways that are simply not visible to Western law enforcement and intelligence agencies.

INSIDIOUS THREATS

Insider theft. Typical smuggling incidents have involved opportunistic thefts of small amounts of material by solitary nuclear workers, who then search for a buyer, often with the help of local relatives or petty criminals, who in turn are soon apprehended by police.. Yet here are important exceptions. For example, in 1998 Russia's Federal Security Service reportedly foiled an attempt by "staff members" of a Chelyabinsk nuclear facility (probably Chelyabinsk-70) to steal 18,5 kilograms of highly-enriched uranium, almost enough for a nuclear bomb. Where the material was headed and who the customers were. Is unclear but an operation of this magnitude almost certainly would have required prior arrangement with a prospective buyer. Also unclear is whether the theft attempt was an isolated case or a single failure in a string of successful diversions.

Other incidents have involved deceptive practices by senior facility managers, specifically illegal exports under cover of the legal trade in nuclear and radioactive materials. In a well-known case, at the Mayak Production Association in Chelyabinsk, the manager of Mayak's isotope separation plant was convicted of exporting a non-nuclear radioisotope (iridium-192) using false customs documentation, Yet managers could just as well create appropriate paperwork to conceal a more serious diversion – describing a shipment of HEU as a relatively innocuous substance-such as natural uranium or cesium, for example.

State-sponsored proliferation. A further danger --one also difficult to detect-- is that of "state-sponsored" proliferation, in which high government officials covertly transfer strategic nuclear goods to client states or groups, either for personal gain or as a matter of policy. The black market network run by A. Q. Khan is latter-day model for this. Khan is known to have sold centrifuge technology and nuclear bomb designs to states such as Iran and Libya; yet, according to an Iranian exile group, it also provided an undisclosed quantity of highly-enriched uranium to the Iranian government in 2001. Almost as egregiously, Pakistan's Atomic Energy Commission in July 2000 took out a full-page ad in a Pakistani newspaper offering for export enriched uranium, plutonium and other nuclear materials. (The ad was withdrawn under U.S. pressure) Similarly, some U.S. officials believe that the Russian-Iranian nuclear cooperation allows Iran to maintain wide ranging contacts with Russian nuclear entities and to exploit these relationships to advance its nuclear weapons objectives.

Demand-side challenges: nation states, terrorists and criminals. Anecdotal evidence suggests that nation states and terrorists are in the market for strategic nuclear goods, but face significantly different constraints in procuring them. Nation states have the advantage of being able to deal with government officials or facility managers directly, and might successfully exploit quasi-official channels and networks (leveraging formal cooperation agreements) to get what they want. Terrorists lack such opportunities, and must somehow link up with a social subset of people who willing to commit illegal or disloyal acts. The obvious candidates here are criminal organizations, specifically ones having connections inside nuclear enterprises and cross-border smuggling experience.

Who would be al Qaeda's natural allies within the criminal world? Probably not major transnational formations such as the Slavic Solntsevo and Uralmash gangs, the Sicilian Cosa Nostra and the Colombian cartels. These entities boast well-protected and lucrative illegal businesses as well as extensive investments in the legal economy and de-facto political representation; they probably would not want to jeopardize these assets (bringing down the wrath of the world's law enforcement agencies) by trafficking in strategic nuclear materials. Al Qaeda is more likely to seek as partners ideologically sympathetic criminals who have relatively less of a stake in the surrounding *status quo*, or even other terrorist groups. Petty criminals recruited by professional jihadists in the jails of Western Europe, North America and the Middle East might fall into this category. Also, reports that al Qaeda has sought assistance from the Chechen "mafiya" and the Islamic Movement of Uzbekistan in pursuing its nuclear ambitions seem to dovetail with this hypothesis.

Smuggling dynamics. Nuclear smuggling is widely perceived as an anemic, disorganized and supply-driven business. Yet evidence suggests increasing levels of sophistication in cross-border smuggling operations. For instance, sellers of nuclear material are increasingly likely to rely on paid couriers instead of trying to move the goods on their own. Smugglers are believed to collect and share information on which Russian customs posts are equipped with radiation monitors and to route their shipments accordingly. Reportedly, smugglers have probed the sensitivity of monitors by sending across decoys with innocuous radioactive items such as radium-dial wristwatches. According to Western customs officials, smugglers are becoming more adept at shielding and concealing their wares, for example encasing material in lead containers installed in vehicles instead of carrying it on their persons. All this seems to suggest an organizational intelligence behind the traffic, as well as (ominously) expectations

that customers exist or can be found for stolen and smuggled materials. Finally, several data bases indicate a significant shift in the locus of smuggling activity, from Europe to the Caucasus and Central Asia. Little weapons-usable material has been detected along these southern routes, but the trend is nonetheless worrisome because of the relative proximity of the traffic to regional trouble spots in the Middle East and South Asia. Possible links of nuclear smuggling to obviously arms and drugs trafficking networks in these regions need to be explored further.

Worst case scenarios. Finally, the visible machinations of the nuclear black market provide little clue to what might already have happened. Recall the period of the 1990s, when the Russian nuclear complex was going through a period of deep malaise. Former Senator Sam Nunn, now the CEO of the Nuclear Threat Initiative, told a Senate Hearing in 1995 that the collapse of the USSR "let loose a vast potential supermarket, for nuclear weapons, weapons-grade uranium and plutonium, and equally deadly chemical and biological weapons." Even allowing for some hyperbole, it would be a miracle indeed if no leakage of significance had taken place during this period. Indeed, nuclear smugglers captured in Europe in the 1990s indicated to authorities that significant quantities of HEU and plutonium had already escaped from government control and were available for sale. Where this material (if it exists) is today is anyone's guess: it could be buried somewhere in a birch forest, stashed in someone's attic, circling the globe looking for potential buyers, or hidden in a cave in remote eastern Afghanistan.

RESPONSES

Limitations of policy. Nuclear security conditions apparently have improved in Russia and other new states since the 1990s. Russian officials claim that thefts have tapered off at nuclear facilities, and no weapons-usable material has surfaced in international smuggling channels in recent years, at least according to the official IAEA record. U.S. materials protection and border monitoring programs and the turnaround in the Russian economy (reflected in much of the nuclear complex) may account for these trends. Nevertheless, prospective thieves and smugglers may have become smarter at circumventing or neutralizing the new systems being installed. Also, nuclear officials are more likely today than in the 1990s to have international connections or relationships enabling them to find connections to potential buyers. The legitimate international trade in radiological materials may provide a cover or channel for shipments of nuclear wares that

could be diverted to dangerous uses. We cannot conclude, therefore, that the nuclear smuggling has diminished in importance, even though the visible signs seem encouraging.

New U.S. safeguards are probably fairly effective against low-end threats from unsophisticated thieves and smugglers but this is not much cause for comfort. At the facility level today's main threat comes not from disgruntled solo players but from conspiracies of well-placed employees able to shut down alarm systems, bribe guards and alter relevant paperwork. Russian experts tell us that at most Russian facilities collusion of just 4 or 5 insiders is required to carry out a successful diversion scheme. Similarly, the border and cargo monitoring systems being deployed in the former USSR and Europe may be ineffective in intercepting serious smugglers with the requisite technological expertise and knowledge of the terrain to move their wares covertly. Obviously, smart smugglers can opt to circumvent those customs posts that are equipped with radiation monitors. Alternatively, they may simply bribe border officials to turn off or ignore the sensors. A further limitation is that most of the equipment being installed at borders is not sensitive enough to detect well-shielded HEU, which is the material most likely to be used in a terrorist bomb.

Additionally, our nuclear security programs absolutely are not designed to counter the state-sponsored proliferation scenarios discussed above. The systems focus on providing support to states presumably desirous of protecting their own nuclear assets. High-level diplomatic pressure and concerted political action are probably the only effective means of dealing with states, or their top officials, that refuse to play by the rules.

Finally, new U.S. security measures have taken a long time to implement. For the Department of Energy's Materials Protection, Control and Accounting Program is not scheduled for completion until the year 2008. But already 15 years have passed since the disintegration of the Soviet Union. The more time our programs require, the more problematic their strategic justification, which raises the question of whether we are simply locking the proverbial barn door after some of the horses have already escaped.

Intelligence-based security. Our "lines of defense"-approach to nuclear security policy have many weaknesses that can be exploited by clever adversaries intent on obtaining the ingredients for a nuclear weapon. This reality highlight the need for approaches that can lower the scope and degree of official corruption (difficult as this is), provide advance warning of illegal nuclear deals and stop

consequential proliferation incidents before they happen. Various options present themselves: here:

First, we might work with the Russians to construct a vulnerability profile of each nuclear energy enterprise. This could be based on such factors as economic conditions and wage scales, neighborhood presence of organized crime and potential terrorist groups, past histories of theft and theft attempts, accessibility to foreign visitors, and frequency of travel abroad by enterprise scientists. It should also be possible to gauge the susceptibility of the nuclear workforce to bribes or blackmail and employees' propensity to engage on corrupt or disloyal conduct.

Illicit drug use, gambling habits major medical expenses, and conspicuous consumption unrelated to income are obvious warning signs. Post-employment screening techniques--polygraphs, psychological testing, and investigation of bank records--can be powerful predictive tools. They might also yield information on prior thefts, possibly leading to recovery of stolen material that perpetrators have not yet had the chance to export. Additionally, remote monitoring of nuclear storage sites and guard posts from vantage points inside and outside the facility in question could provide an additional layer of security against insider thefts. Some such steps are now being introduced within the Russian nuclear complex, but not on the scale contemplated here.

A second recommendation is to focus more intelligence and law enforcement resources on the nuclear smuggling problem, especially on the demand side of the proliferation equation. Better intelligence can be seen as a dynamic component of nuclear defense, complementing the essentially reactive and stationary risk management systems that the United States is implementing in the former USSR and elsewhere. Not enough is known about adversaries' WMD procurement networks in nuclear supplier states: how they are organized, and financed, what front companies and other intermediaries are used, who their inside collaborators are and so on. Law enforcement sting operations in which operatives play the role of purveyors of strategic nuclear materials can be useful in fleshing out buyer and end-user networks and in shutting some of them down.

Third, and related to this, collaboration with law enforcement and security agencies in countries of proliferation concern needs to be strengthened. Such organizations do much of the heavy lifting in containing nuclear theft and smuggling (see Chelyabinsk incident referred to earlier.) They also possess useful

information on smuggling incidents, trends, players, networks and terrorist connections that would be of great value in configuring U.S nonproliferation programs in these countries.

Finally, as should be obvious, the imperatives of U.S. nuclear security policy are ultimately inseparable from the imperatives of the global war on terrorism. Al Qaeda's attempts to acquire nuclear materials and weapons have gone on for well over a decade. A large penumbra of uncertainty surrounds the extent of nuclear leakage from Russia and other supplier states. We do not know how far al Qaeda and its affiliates may have progressed toward building a bomb. Hence, as we build our defenses against proliferation in Russia, Europe and elsewhere, we must remain vigilant against threats that may be already out there, waiting to strike us when we least expect.